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Comments on Report of John J. Datovech, P.E., C.F.E.I.  
re. C.A. No. 04CV12257NG  
dated April 17, 2006

**1. Matters not in dispute** - There is no disagreement that:

- The cause of the fire was the ignition of a "Kellogg's strawberry frosted pop tart" in a Hamilton Beach Proctor -Silex Model 22430, Type 17, electric toaster.
- The toast timer control was on its highest setting (i.e., "6").
- There were no signs of abnormal electrical activity in the toaster wiring or the branch circuit wiring/receptacle powering the toaster.
- The toaster latch striker was not engaging the slot in the latch. The timer and latch release mechanism likely operated properly.

**2. Data Collected from the UL File** - Mr. Datovech states, "*A review of UL File E6132, Vols. 1, 20, Sec. 19 indicates that UL independently determined the design and manufacturing of the Type 17 toaster complied with ANSI/UL 1026. This means that the design of the McNeil toaster successfully passed the full battery of the required third-party evaluations and tests required by this standard.*"

My Comment - UL would be the first to state that successfully meeting all requirements of its standard does not assure that a product cannot fail in an unsafe manner due to a design or manufacturing defect. Ironically, the standard cited, UL 1026, was revised circa 2001, at the urging of the CPSC, to upgrade the requirements for electric toasters. The McNeil toaster design does not meet the revised standard that requires that the heating elements be deenergized separately from movement of the food carriage. The design used in the McNeil toaster could not achieve UL listing under the current UL 1026 requirements as its deenergization requires the upward movement of the food carriage to operate the switch that supplies power to the heating elements.

**3. The Equations Relating to Spring Force** - The equations are valid but their application in this situation is not valid. The problem is that the equations apply to an ideal spring used within its elastic limit. The spring in this toaster stretched well beyond its elastic limit and permanently deformed. Mr. Datovech's own photos show this deformation and he states that in his experiment "*the six active coils were permanently stretched a distance of 1.44 inch.*" This obviously changes the overall length of the spring and the distance to which it is stretched by the toaster carriage mechanism.

**4. The Cause of the Lifter Spring Stretching Damage** - This is the key difference in our opinions. Mr. Datovech opines that the stretching damage was a result of the heat of the fire and that this type of stretching is typical of toaster springs that have been in a fire. I agree that there is enough heat to cause toaster springs to stretch during a fire. Where I disagree is that springs that stretch solely due to the heat of a fire do not display an abrupt transition between no stretching and extreme stretching in the space of one coil as this spring did. It also displayed this abrupt transition precisely at the point where I believe it caught in the adjacent slot in the carriage mechanism.

**5. Mr. Datovech's Experiment** - Mr. Datovech's experiment had several flaws:

- It was not the same model toaster. I assume he could not obtain an identical toaster as it is out of production. Granted, the toaster used the same return spring but the carriage mechanism and switch were not identical to that of the McNeil toaster.
- He ran the experiment once. The McNeil toaster spring may have been subjected to thousands of operations prior to the fire.
- Most important ... why didn't he run an experiment using a pop tart to see if the pop tart would ignite with the toast dial at its highest setting? Kellogg pop tarts are readily available. Ignition of the pop tart would have supported his conclusion that this was what caused the pop tart to ignite.

**6. My Experiment -**

I ran the experiment that Mr. Datovech did not. As I could not obtain an identical toaster to the McNeil model, I used a Proctor-Silex Model 22427, Type 25 toaster. This toaster is functionally similar ... it is a two slot toaster with a toast dial calibrated from 1 (lightest) to 6 (darkest) and is rated 930-watts. I purchased a package of Kellogg strawberry frosted pop tarts at a local market. I placed two tarts in the toaster (facing in different directions to obtain worst-case w/r frosted side facing heating elements) and set the dial at its maximum setting of "6". At the end of the toast cycle (approximately 150-seconds), the tarts popped up with no sign of smoking or burning. I then initiated another cycle (after a delay of approximately one minute). Approximately one minute into this second cycle there was light smoking of the tarts visible. By the end of the cycle, the smoke had increased moderately but there was no flaming or other sign of ignition of the tarts or their frosted coatings. This experiment demonstrated that, even with the dial at its highest setting of "6", the pop tarts would not ignite in one or even two toast cycles. The results of this experiment contradict Mr. Datovech's conclusion that the cause of the fire was Mr. Doyle's misuse of the toaster in placing the toast control dial on its highest setting.